

SUPPORT FOR THE AMENDMENTS

The present amendment cancels claims 1-14, and adds new claims 15-40.

Support for newly added claims 15-19 is found at specification page 3, lines 18-25, page 4, lines 8-23, page 8, lines 9-13, page 9, lines 14-17 and 22-25, page 16, lines 9-20, page 22, lines 2-4 and 11-15, and page 23, lines 11-14 and 17-20.

Support for newly added claims 20-21 is found at specification page 5, lines 24-25, page 10, lines 7-8 and 23-24, page 19, lines 14-15, and page 20, lines 5-6 and 24-25.

Support for newly added claim 22 is found at specification page 10, lines 10-12, and page 19, lines 17-19.

Support for newly added claim 23 is found at specification page 10, lines 17-21, page 19, lines 24-25, and page 20, lines 1-3.

Support for newly added claim 24 is found at specification page 11, line 11, and page 20, line 17.

Support for newly added claim 25 is found at specification page 11, line 20, and page 21, line 1.

Support for newly added claim 26 is found at specification page 6, lines 4-6, page 8, lines 23-24, page 18, lines 9-10.

Support for newly added claims 27-29 is found at specification page 12, lines 12-14, and page 16, lines 20-23.

Support for newly added claim 30 is found at specification page 12, lines 14-17, and page 18, lines 20-22.

Support for newly added claim 31 is found at specification page 8, lines 18-20, and page 18, lines 4-6.

Support for newly added claim 32 is found at specification page 9, lines 4-8, and page 18, lines 16-18.

Support for newly added claims 34-39 is found at specification page 6, lines 7-16, and page 13, lines 4-7 and 14-15.

Support for newly added claim 40 is found at specification page 2, lines 7-14, page 7, lines 22-25, and page 8, lines 1-6.

Support for the amendment to the paragraph beginning on page 11, line 18, is found at specification page 20, lines 24-25.

It is believed that these amendments have not resulted in the introduction of new matter.

REMARKS

Claims 15-40 are currently pending in the present application. Claims 1-14 have been cancelled, and new claims 15-40 have been added, by the present amendment.

The rejections of now cancelled claims: (1) 1 under 35 U.S.C. § 102(b) as being anticipated over Burger (U.S. Patent 6,863,972 based on U.S. 2002/0090471); (2) 2, 3, 6, 8 and 9 under 35 U.S.C. § 103(a) as being obvious over the combined disclosures of Burger and Hills (U.S. Patent 6,752,941); (3) 4 and 7 under 35 U.S.C. § 103(a) as being obvious over the combined disclosures of Burger, Hills and Maeda (U.S. 2005/0154094); (4) 5, 10 and 11 under 35 U.S.C. § 103(a) as being obvious over the combined disclosures of Burger, Hills and Yumiko (JP 2003-184289); (5) 12 and 13 under 35 U.S.C. § 103(a) as being obvious over the combined disclosures of Burger, Hills, Yumiko and Hiromitsu (JP 2002-347152); (6) 14 under 35 U.S.C. § 103(a) as being obvious over the combined disclosures of Burger, Hills, Yumiko and Pollard (U.S. Patent 3,810,337), are obviated by amendment with respect to new claims 15-40.

New claim 15 recites a weather-resistant synthetic wood comprising a foamed core body material and a weather-resistant outer layer material covering a surface of and integrally bonded by coextrusion molding to said foamed core body material, wherein said weather-resistant outer layer material is unfoamed or foamed at an expansion rate lower than that of said foamed core body material, wherein said foamed core body material is a mixture comprising: 100 wt. % of a primary component comprising either a polystyrene resin and an optional high-impact polystyrene resin, or a polypropylene resin; and 5-50 wt. % of a secondary component comprising one or more of an acrylonitrile-butadiene-styrene copolymer, an acrylonitrile-acrylic-styrene copolymer, and an acrylonitrile-ethylene-propylene-styrene copolymer, based on 100 wt. % of said primary component of said foamed core body material, and wherein said weather-resistant outer layer material is a mixture

comprising: 100 wt. % of a primary component comprising one or both of an acrylonitrile-acrylic-styrene copolymer, and an acrylonitrile-ethylene-propylene-styrene copolymer; and 5-80 wt. % of a secondary component comprising one or more of a polystyrene resin, a high-impact polystyrene resin, and a polypropylene resin, based on 100 wt. % of said primary component of said weather-resistant outer layer material.

Burger, Hills, Maeda, Yumiko, Hiromitsu and Pollard, when considered alone or in combination, fail to disclose or provide sufficient motivation and guidance to direct a skilled artisan to incorporate the primary component of the weather-resistant outer layer material as a secondary component within the foamed core body material, and to incorporate the primary component of the foamed core body material as a secondary component within the weather-resistant outer layer material, as claimed in new claim 15, in order to synergistically improve the adhesion exhibited between the foamed core body material and the weather-resistant outer layer material, which have been integrally bonded by coextrusion, in accordance with the present invention.

Assuming *arguendo* that sufficient motivation and guidance is considered to have been provided by Burger, Hills, Maeda, Yumiko, Hiromitsu and/or Pollard, such a case of obviousness is rebutted by a showing of synergistic results and secondary considerations.

As discussed in the present specification, due to the enormous amount of waste resin generated in the plastics industry, it would be advantageous from an environmental standpoint to manufacture synthetic wood products for outdoor use from recycled waste resin, such as polystyrene resin, high-impact polystyrene resin, and polypropylene resin (See e.g., page 2, lines 7-14). Unfortunately however, polystyrene resin, high-impact polystyrene resin, and polypropylene resin exhibit poor weather-resistance (See e.g., page 2, lines 15-19).

To circumvent this deficiency in weather-resistance, a weather-resistant synthetic wood has been manufactured comprising a foamed core body material and a weather-resistant

outer layer material covering the surface of the foamed core body material, wherein the foamed core body material comprises either a polystyrene resin and an optional high-impact polystyrene resin, or a polypropylene resin, and wherein the weather-resistant outer layer material comprises a weather-resistant resin, such as an acrylonitrile-acrylic-styrene copolymer and an acrylonitrile-ethylene-propylene-styrene copolymer (See e.g., page 2, lines 20-25, page 3, line 1). Unfortunately however, these weather-resistant resins exhibit poor adhesion to the foamed core body material comprising either a polystyrene resin and an optional high-impact polystyrene resin, or a polypropylene resin, and are therefore easily peeled away from the foamed core body material (See e.g., page 3, lines 2-4).

Accordingly, there has been a long-felt need to provide a weather-resistant synthetic wood comprising a foamed core body material formed of either a polystyrene resin and an optional high-impact polystyrene resin, or a polypropylene resin, and a weather-resistant outer layer material formed of a weather-resistant resin, such as an acrylonitrile-acrylic-styrene copolymer and an acrylonitrile-ethylene-propylene-styrene copolymer, that covers the surface of and exhibits excellent adhesion to the foamed core body material. Based on the conventional synthetic wood compositions described in Burger, Hills, Maeda, Yumiko, Hiromitsu and Pollard, other skilled artisans have failed to discover a solution to this long-felt need.

In contrast however, as shown by the experimental data presented in examples 1-2 and comparative examples 1-2 on pages 22-24 of the present specification, Applicants have discovered that the adhesion exhibited between the foamed core body material and the weather-resistant outer layer material, which have been integrally bonded by coextrusion, is synergistically improved by incorporating the primary component of the weather-resistant outer layer material as a secondary component within the foamed core body material, and by incorporating the primary component of the foamed core body material as a secondary

component within the weather-resistant outer layer material, as claimed in new claim 15 (See e.g., page 11, lines 21-25, page 12, lines 1-2, page 18, lines 23-25, page 19, lines 1-4).

Withdrawal of these grounds of rejection are respectfully requested.

Applicants wish to note that consideration of reference AW (Sawada) cited on the Information Disclosure Statement submitted on November 28, 2006, has not been acknowledged. More specifically, this reference does not appear to have been considered, as the Examiner's initials are notably absent with respect to this reference. Applicants respectfully request that the Examiner acknowledge consideration of this reference by providing Applicants with an initialed copy of the PTO-1449 Form submitted on November 28, 2006, at the Examiner's earliest convenience. A copy of this PTO-1449 Form, along with a copy of the date-stamped filing receipt evidencing the timely filing thereof, is appended herewith for the Examiner's convenience.

In conclusion, Applicants submit that the present application is now in condition for allowance and notification to this effect is earnestly solicited.

Respectfully submitted,

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10/584,765	Mamoru Moriya	292234US0PCT

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CONFIRMATION NO. 5795

371 ACCEPTANCE LETTER



\*OC000000022691179\*

Date Mailed: 03/08/2007

## NOTICE OF ACCEPTANCE OF APPLICATION UNDER 35 U.S.C 371 AND 37 CFR 1.495

The applicant is hereby advised that the United States Patent and Trademark Office in its capacity as a Designated / Elected Office (37 CFR 1.495), has determined that the above identified international application has met the requirements of 35 U.S.C. 371, and is ACCEPTED for national patentability examination in the United States Patent and Trademark Office.

The United States Application Number assigned to the application is shown above and the relevant dates are:

<u>06/28/2006</u>	<u>06/28/2006</u>
DATE OF RECEIPT OF 35 U.S.C. 371(c)(1), (c)(2) and (c)(4) REQUIREMENTS	DATE OF COMPLETION OF ALL 35 U.S.C. 371 REQUIREMENTS

A Filing Receipt (PTO-103X) will be issued for the present application in due course. **THE DATE APPEARING ON THE FILING RECEIPT AS THE " FILING DATE" IS THE DATE ON WHICH THE LAST OF THE 35 U.S.C. 371 (c)(1), (c)(2) and (c)(4) REQUIREMENTS HAS BEEN RECEIVED IN THE OFFICE. THIS DATE IS SHOWN ABOVE.** The filing date of the above identified application is the international filing date of the international application (Article 11(3) and 35 U.S.C. 363). Once the Filing Receipt has been received, send all correspondence to the Group Art Unit designated thereon.

The following items have been received:

- Copy of the International Application filed on 06/28/2006
- English Translation of the IA filed on 06/28/2006
- Copy of the International Search Report filed on 06/28/2006
- Preliminary Amendments filed on 06/28/2006
- Information Disclosure Statements filed on 11/28/2006
- Oath or Declaration filed on 06/28/2006
- Request for Immediate Examination filed on 06/28/2006
- U.S. Basic National Fees filed on 06/28/2006
- Priority Documents filed on 06/28/2006

Form PTO 1449  
(Modified)U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICE

ATTY DOCKET NO.

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SERIAL NO.

10/584,765

## LIST OF REFERENCES CITED BY APPLICANT

APPLICANT

Mamoru MORIYA, et al.

FILING DATE

June 28, 2006

GROUP

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	AA						
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						
	AL						
	AM						
	AN						

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION	
					YES	NO
	AO	2001-205751	07/31/01	JP(equivalent of US 2002/192401)		NO
	AP	2003-321563	11/14/03	JP		NO
	AQ	9-228577	09/02/97	JP		NO
	AR	4-191043	07/09/92	JP		NO
	AS	2001-30430	02/06/01	JP		NO
	AT					
	AU					
	AV					

## OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)

	AW	SAWADA, Keiji, "Plastic Oshidashi Keisei no Saishin Gijutsu", 1 <sup>st</sup> edition, Kabushiki Kaisha Raba Daijesuto Sha, Pages 239 - 244, 25 June, 1993.				
	AX					
	AY					
	AZ					<input type="checkbox"/> Additional References sheet(s) attached

Examiner

Date Considered

\*Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.